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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,593	03/11/2004	Arun Krishnan	2003P03588 US01	6365
7590 Siemens Corporation Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830			EXAMINER ALLISON, ANDRAE S	
			ART UNIT	PAPER NUMBER
			2624	
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			03/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/798,593

Applicant(s)

KRISHNAN, ARUN

Examiner

ANDRAE S. ALLISON

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed January 3, 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 3, 2008 has been entered.

Response to Remarks

2. The Office Action has been made issued in response to amendment filed January 3, 2008. Claims 1-22 are pending.

Claim Rejections – 35 USC section § 101

Claims 12-22 were amended to include a computer readable medium, thus making the claims statutory. Therefore the rejection is being withdrawn.

Claim Rejections – 35 USC section § 102

In response to Applicant argument on page 6-7 Takeo does not teach automatically and purposefully adding a false mark in the image data to compel review of marked image data, however Takeo teaches in column 13, line 53-60, that a

radiologist or clinician accesses an output image after the image have been processed by the abnormal pattern detection device, and if an abnormal pattern is not detected, one can be added. Takeo points out in column 6, lines 30-36 that this method of abnormal detection method is objective. Also, note that the result of the pattern reading assessment is compared with pathologic assessment (see column 15, lines 19-35) and therefore the performance of cancer assessment of a doctor or an institution can be determined (column 15, lines 52-55). However, Takeo does not specifically teach performing a computer-aided detection (CAD) process.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 6, 8-13, 17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo (US Patent No.: 7,162,061) in view of Wang (US Patent No.: 6,266,435)

As to independent claim 1, Takeo discloses a method for automatic detection of medical conditions in medical images (abnormal pattern detection method, column 1, lines 7-10), comprising the steps of: receiving image data (e.g. mammogram images, see column 10, lines 7-9); performing a computer-aided detection (CAD) process to

detect potential medical conditions in the image data (detects and process abnormal patterns, e.g. a tumor pattern, see column 11, lines 25-33); adding a mark in the image data that indicates a detected medical condition during the CAD process (e.g. P1, see Fig 2A); automatically and purposefully adding a false mark in the image data that incorrectly indicates a detected medical condition during the CAD process to compel manual review of marked image data (note that if an abnormal pattern is not detected, one can be added and a clinician makes an assessment of the results of the abnormal pattern detection processor, see column 13, lines 61-67); and outputting marked image data comprising one or more marks that indicate a detected medical condition (e.g. P1 and P11, see Fig 2A and also see column 16, lines 1-13). However, Takeo does not expressly disclose performing a computer-aided detection (CAD) process. Wang disclose a computer-aided diagnosis method. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Takeo and Wand to provide annotation information that can include an assessment of the probability of likelihood or predictive value of the CAD-detected suspected abnormalities as an additional aid to the radiologist or other user, by adding information such as probability information to the locational markers of the CAD-detected suspected abnormalities, would make it easier for a physician in assessing/dismissing the CAD-detected markers.

As to independent claim 12, this claim differs from claim 1 only in that claim 10 is program storage device whereas, claim 1 is method and the limitations a machine and a

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program of instructions executable by the machine are additively recited in the preamble. Takeo clearly teaches a machine (see Fig 1) and a program of instructions executable (program for making quantitative evaluation; column 12, lines 15-17) by the machine.

As to claim 2, Takeo teaches the method, wherein the step of adding a false mark comprises adding a fixed number of false marks in the image data (see column 13, lines 65-67, where only one abnormal pattern is added).

As to claim 6, Takeo teaches the method, wherein the step of adding a false mark comprises marking a region or structure in the image data that has features similar to a medical condition being evaluated (note that before the abnormal pattern is added, a pattern reader determines if an abnormal pattern exit, see column 13, lines 53-57).

As to claim 8, Takeo teaches the method, wherein the medical condition comprises an abnormal anatomical structure (e.g. a tumor pattern, see column 11, line 29).

As to claim 9, Takeo teaches the method, wherein the medical condition comprises a lesion (e.g., P1, abnormal pattern, see Fig 2A).

As to claim 10, Takeo teaches the method, further comprising rendering the

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marked image data to display one or more 2D, 3D, or both 2D and 3D images having marks (see Fig 2A).

As to claim 11, Takeo teaches method further comprising the step of not including a mark at a location or region in the image data that is detected as having a potential medical condition (note that before the abnormal pattern is added, a pattern reader determines if an abnormal pattern exit, see column 13, lines 53-57).

Claims 1-2 differ from claims 12-13 only in that claims 1-2 are method claims whereas, claims 12-13 are computer readable medium claims. Thus, claims 12-13 are analyzed as previously discussed with respect to claims 1-2 above.

Claim 17 differ from claim 6 only in that claim 6 is a method claim whereas, claim 17 is a program storage device claim. Thus, claim 17 is analyzed as previously discussed with respect to claim 6 above.

Claims 19-22 differ from claims 8-11 only in that claims 8-11 are method claims whereas, claims 19-22 are program storage device claims. Thus, claims 19-22 are analyzed as previously discussed with respect to claims 8-11 above.

5. Claims 3-5, 7, 14-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo (US Patent No.: 7,162,061) in view of Wang (US Patent No.: 6,266,435) further in view of Ishiguro (US Patent No.: 6,108,439).

As to claim 3, Takeo does not expressly disclose the method wherein the fixed number of false marks are added to random locations in the image data. Ishiguro discloses an ultrasound image processing method that includes wherein the fixed number of false marks are added to random locations in the image data (see column 14, lines 22-37, where markers are arbitrarily inserted into an ultrasound image).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Takeo as modified by Wang and Ishiguro to arbitrarily or randomly add false marker to medical image data for determining a doctor or radiologist consistently or accuracy in diagnosing a medical condition, furthermore, randomly inserting a signal or marker into image data is well know in the art.

As to claim 4, note the discussion above Ishiguro teaches the method wherein the step of adding a false mark comprises adding a random number of false marks in the image data for each invocation of the automatic detection method (note that the amount of markers to be inserted can be controlled, see column 14, lines 30-37).

As to claim 5, note the discussion above Ishiguro teaches the method, wherein the step of adding a random number of false marks comprises adding no false marks for

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a given invocation or adding one or more false marks for a given invocation (column 13, lines 30-42).

As to claim 7, note the discussion above Ishiguro teaches the method, wherein the step of adding a false mark comprises randomly perturbing a location at which a mark is inserted in the image data to indicate a detected medical condition (since the markers are inserted randomly, a location will be randomly or arbitrary perturbed, see column 14, lines 22-37).

Claims 14-16 differ from claims 3-5 only in that claims 3-5 are method claims whereas, claims 14-16 are program storage device claims. Thus, claims 14-16 are analyzed as previously discussed with respect to claims 3-5 above.

Claim 18 differ from claim 7 only in that claim 7 is a method claim whereas, claim 18 is a program storage device claim. Thus, claim 18 is analyzed as previously discussed with respect to claim 6 above.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Meta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison
January 31, 2008

/Andrew W. Johns/
Primary Examiner, Art Unit 2624

A.A.